

Δ Delta "T" Systems

DELTA "T" SYSTEMS



2012 Product & Service Catalog

Products And Systems That Make Vessels Better



*United States Agent for
Cranston Eagle
Marine Off-Load Hooks*



Creating quality systems that ensure safety and enhance efficiency for more than twenty years.



DELTA "T" SYSTEMS

Delta "T" Systems



The Company

Delta "T" Systems is the world leader in marine engine room ventilation systems. Originally established in 1992, the company was born out of a critical need to provide a reliable supply of clean, dry, salt-free air to the engine rooms of commercial vessels, pleasure yachts, and U.S. Military vessels, as well as the off-shore oil and gas industry.

**Delta "T" Systems means performance,
reliability and longevity of all of your
vessel's engine room equipment**

The Problem

Proper engine room ventilation has been largely overlooked for years. Most of today's newer vessels lack adequate airflow for optimum engine performance because the trend across all vessel types is toward larger engines with a greater need for combustion and cooling air.

This leaves your vessels subjected to:

- greatly increased maintenance and fuel costs
- high restriction and poor performance
- salt and moisture damage
- dangerous heat and noise levels
- auxiliary equipment damage
- engine warranty problems
- catastrophic engine failure

The Solution

Delta "T" Systems offers the unique service of complete engine room ventilation design from inlet to outlet. The cornerstone of our approach is a database of heat and air requirements from virtually every marine diesel engine and generator manufacturer along with our own extensive database from actual installations. Delta "T" Systems provides ventilation design and engineering, and is also your single source for all major ventilation system components.

Consult with one of our application engineers to determine how Delta "T" Systems can increase your vessel's performance and save you money.

Positive results are guaranteed.

Studies done by the U.S. Coast Guard have determined that Delta "T" Systems' complete ventilation systems can save five million dollars in terms of fuel and engine overhaul expenses over the life cycle of each vessel in the 87CPB fleet. Each vessel is expected to operate for 25 to 30 years.





Delta "T" Systems

WITT&SOHN

IGW Ventilatoren

It's all about CAPABILITIES and EXPERIENCE.

Delta "T" Systems and Witt & Sohn have collectively completed more than 28,000 projects on vessels of all sizes and types around the world.

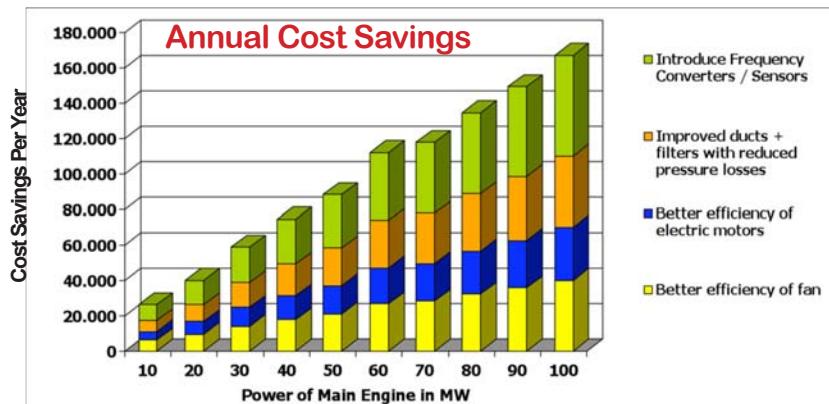
Delta "T" Systems has joined forces with the world class ventilation manufacturer Witt & Sohn from Germany in order to offer the marine market an unparalleled level of quality, service and capability. For vessels of virtually any size, there is no equal in high-efficiency engineered marine engine room ventilation systems that will substantially reduce energy consumption and save money.

Together, Delta "T" Systems' and Witt & Sohn's engineering and manufacturing capabilities are able to tackle any ventilation project, including:

- Fans of any size
- Guide Vanes of any size
- Flex Couplings of any size
- Rated and Unrated Fire Dampers for any application
- Moisture Eliminators of any size and shape
- Control Systems for any application

Many of Witt & Sohn's unique refit solutions allow a vessel's crew to replace engine room ventilation fans while the vessel is under way, thereby reducing down time and eliminating the refit yard expenses. These solutions pay for themselves in months and go on to provide years of cost-saving operation for direct bottom line energy savings.

Call today for a free consultation with one of our engineers to find out how Delta "T" Systems and Witt & Sohn can make your vessel more efficient and reliable with one of our custom engineered cost saving solutions.



Premium AC Axial Fans



Design & Construction — Axial Ventilation Fans produced by Delta "T" Systems are specifically designed and built for the rigors of the marine environment — not adapted from other industries. Flanged housings of welded marine grade aluminum provide lightweight and excellent corrosion resistance. Major assembly hardware is corrosion resistant stainless steel for long life. An external junction box mounted on the housing exterior is provided for electrical connections.

Motors — High efficiency three phase and single phase direct drive motors are utilized to provide quiet continuous duty service. Our motors use an aluminum frame and multi-point "spider" or "pad" mounting for corrosion resistance, lighter weight and enhanced air flow characteristics. Available with "CE" Classification, 50 or 60 HZ, and optional I-EEE-45 Certification, these motors are designed for worldwide applications and can be provided in nearly any voltage configuration. Standard motor sizes from 1/4 HP (.19 kW) to 30 HP (23.4 kW) are available.

Fan Hubs & Blades — Corrosion resistant aluminum hubs are secured directly to the motor shaft using multiple locking methods for enhanced safety and reliability. Fan blades are non-corrosive polypropylene composite and are pitch adjustable to allow for a wide

range of flows and duties. The high performance airfoil blade shape provides for exceptional flow characteristics and low sound levels. All fans are tested in accordance with AMCA Standard 210. Axial Ventilation Fans have a non-overloading characteristic; the peak power input occurs within the range of normal operating pressures and is always exceeded by the motor rating.

Finish — Aluminum housings are provided "mill finish" without paint, or powder coated in any color.

Standard Sizes — Our premium series fans range in size from 12" (305 mm) ID to 60" (1524 mm) ID. For larger vessels, axial marine grade fans are available up to 106" (2690 mm) in diameter with flow rate to 600,000 CFM.

Standard Flows — Ranging from 875 CFM (42 m³/Min) to 100,000+ CFM (1642.4+ m³/Min), Delta "T" Systems Axial Ventilation Fans can be configured to your exacting specifications.

Custom Sizes — Can't source a fan in time or need a drop-in replacement for an existing fan? Need a larger flow or diameter than the standard sizes? Just provide us with your requirements and housing dimensions and Delta "T" Systems will build your fan using the same high quality marine components as our premium series.

Fan Guards

Delta "T" Systems' fan guards are available in all standard sizes. The welded steel construction is plastic dipped for completely sealed protection from the elements.

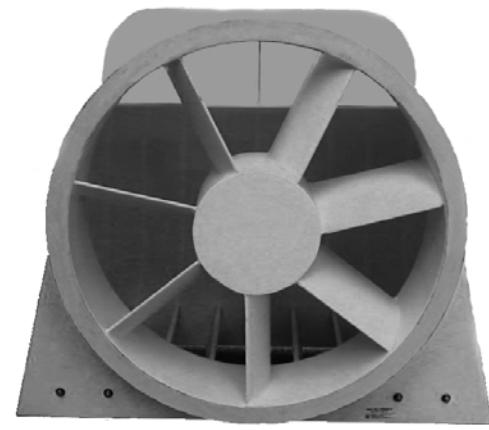
Fan guards are a highly recommended option on Delta "T" Systems' high-output axial fans in order to prevent debris and other foreign matter from entering the fan.



Axial Fan Diverters



Front View Showing Adjustable Airstream Guidance Vanes



Bottom View Showing Turning Vanes

Overview - Airflow Diverters are used to guide the intake air for the engine room to the proper locations in order to feed the engines with an ample supply of combustion air and to efficiently cool the engine room to the engine manufacturer's specifications. Diverters function to split a single column of intake air that the intake fans are bringing into the engine room into two or three separate columns of air and then redirect those columns to places in the engine room where they are most needed.

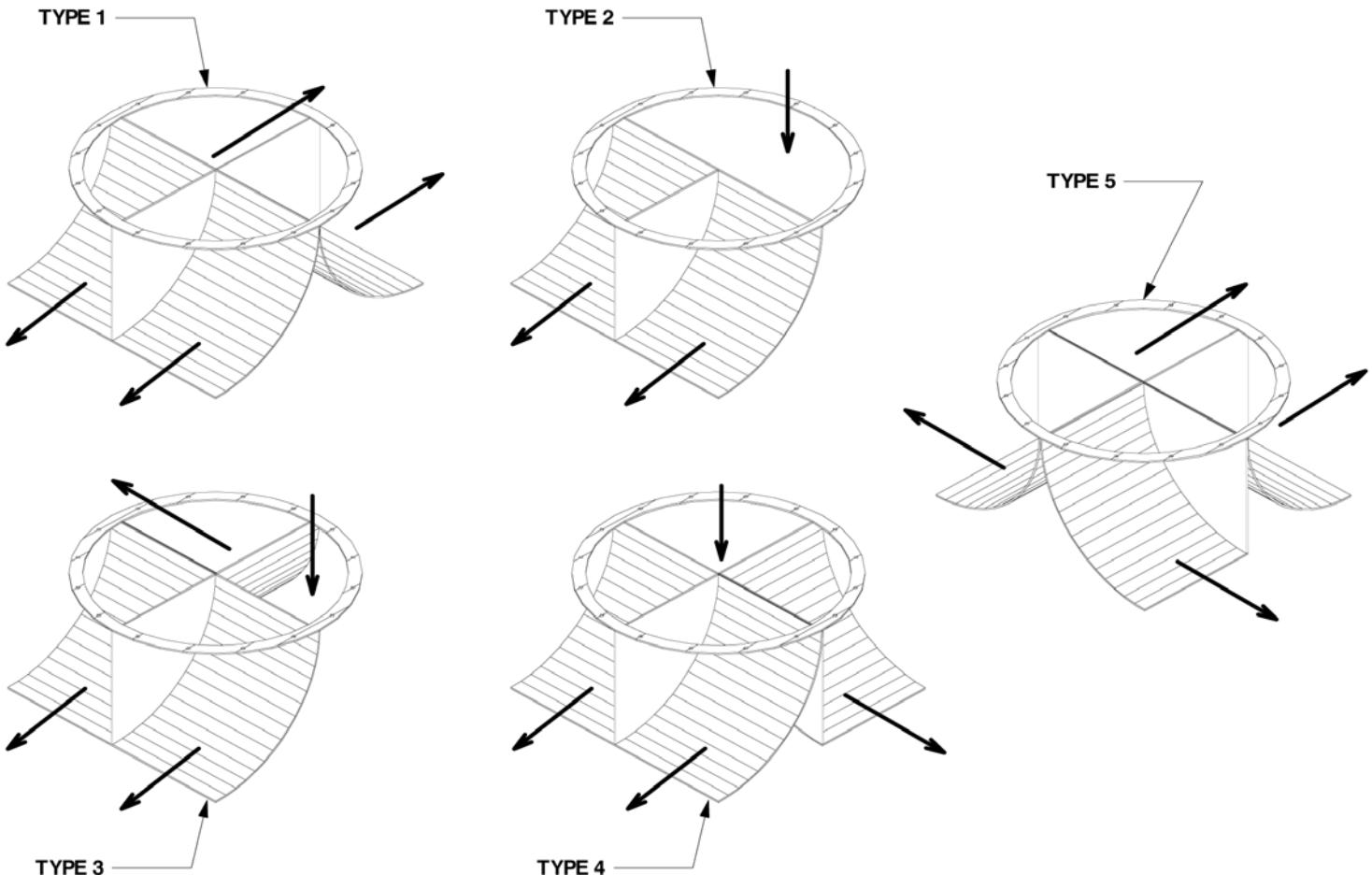
CPB Type Diverter - Delta "T" Systems' Airflow Diverters come in two standard styles. The 501-CPB type diverter shown above comes standard with internally mounted turning vanes. The turning vanes have been engineered to straighten out the rotational forces of the air as it leaves the fan housing in order to enhance the linear flow of the air column. This leaves a cleaner and more efficient air flow which results in higher fan efficiencies and more accurate distribution throughout the engine room. The housing of the 501-CPB type diverter is made of marine grade aluminum and is available in mill finish or powder coated in any color. The turning vanes are made of FRP for durability, corrosion resistance and weight reduction. The 501-CPB type diverter has universal mounting capabilities. The use of an

adaptor ring for mounting the diverter to the fan housing eliminates the need to match up bolt hole patterns, thereby simplifying ordering and installation.



Standard Diverter - The second type of Airflow Diverter is the standard intake fan diverter as shown to the right. This type of diverter comes in five distinct types and is custom built for specific applications on board each vessel. These diverters are available in any size and may also be custom made for any application. The bolt pattern on the standard diverters has been designed to mate up with the Delta "T" Systems' fan housings. They are constructed of welded marine grade aluminum and are available in mill finish or powder coated in any color.

Standard Airflow Diverter Types



Guided Airflow for Optimum Performance



Visit www.deltatsystems.com for specifications

Redneck Fans



**High Performance
Fans and Fan Kits**

**STANDARD
Line**

&

**ECONOMY
Line**



- **Standard Line** housings built from epoxy coated steel and available in eight standard sizes from 12 to 48 inches
- **Economy Line** housings built from type 1 PVC and available in five standard sizes from 12 to 24 inches
- **High output design**
- **TEFC rolled steel motors**
- **Kits assemble in minutes using standard tools**

OEMs - Redneck Fans are also available in custom configurations and fully assembled. For a custom quote, contact your nearest distributor.



ECONOMY Line

- Available in 5 standard sizes from 12 to 24 inches
- Type 1 PVC Fan Housings

STANDARD Line

- Available in 8 standard sizes from 12 to 48 inches
- Epoxy Coated Steel Fan Housings

Design & Construction — Axial Ventilation Fans produced by Delta "T" Systems are specifically designed and built for the rigors of the marine environment — not adapted from other industries. The Poly Line is made with flanged housings of welded class 1 PVC provide lightweight and excellent corrosion resistance. The Steel Line is built from rolled steel housings and epoxy coated for protection against the elements. Major assembly hardware is corrosion resistant stainless steel for long life.

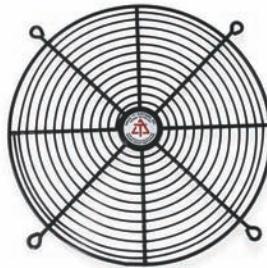
Motors — Premium efficiency three phase and single phase direct drive motors are utilized to provide quiet continuous duty service. Available with "CE" Classification, 50 or 60 HZ, and optional I-EEE-45 Certification, these motors are designed for worldwide applications and can be provided in nearly any voltage configuration.

Fan Hubs & Blades — Corrosion resistant aluminum hubs are secured directly to the motor shaft using multiple locking methods for enhanced safety and reliability. Fan blades are non-corrosive polypropylene composite and are factory balanced for smooth operation and long life cycles. The high performance airfoil blade shape provides for exceptional flow characteristics and low sound levels. All fans are tested in accordance with AMCA Standard 210. Redneck Fans have a non-overloading characteristic; the peak power input occurs within the range of normal operating pressures and is always exceeded by the motor rating.

Redneck Fans

Accessories

Fan Guards



Variable Frequency Drives



Control Systems



P/T 5 Automatic Fan Control



C2 Manual Fan Control

Small AC Axial Fans

11 Inch AC Axial Fan



Airflows to 1100 CFM

8 Inch AC Axial Fan



Airflows to 607 CFM

Application — Ideally suited for small vessel engine rooms and OEM applications where compact ventilation systems are required. These fans provide over four times the air volume of small AC centrifugal marine blowers with a substantial weight savings. Unbelievably quiet when running, these fans will provide thousands of hours of continuous service.

Design & Construction — The 8" and 11" Axial Ventilation Fans are specifically designed and built for the rigors of the marine environment. With a flanged housing of cast aluminum, this lightweight unit provides a compact fan with excellent corrosion resistance. Extended wiring leads from the motor to a terminal strip provide for simple quick installation.

Motor — 50/60 HZ High efficiency single phase direct drive motor provides extremely quiet continuous duty service, yet draw only 80 WATTS. Motors are totally enclosed (TEAO) double shielded ball bearing type. Available in both 115 VAC and 230 VAC, these motors are designed for worldwide applications.

• 8 Inch Fan-115 Volt AC — Part No. 500-208281/1
• 8 Inch Fan-230 Volt AC — Part No. 500-208281/2

Fan Hubs & Blades — A corrosion resistant hub is secured directly to the motor shaft using multiple locking methods for enhanced safety and reliability. Fan blades are finished with black powder coated paint for corrosion resistance. The high performance blade shape provides for exceptional flow characteristics and low sound levels - only 61 dBA at free air flow.

Finish — Corrosion resistant aluminum housings are provided "mill finish" without paint.

The 8 and 11 Inch AC Axial Fans are speed controllable using the **WC 15 and WC 25 Adjustable Manual AC Fan Controls**.

WC 15 WC 25



- WC 15 — Part No. 600-WC15
- WC 25 — Part No. 600-WC25

- 11 Inch Fan-115 Volt AC — Part No. 500-211115
- 11 Inch Fan-230 Volt AC — Part No. 500-211230

AC In-line Duct Fans

80XL Series Inline Centrifugal Duct Fans



Delta "T" Systems' line of versatile In-line fans are available for ducts from 4 inches to 10 inches in diameter. They feature a rugged plastic housing constructed of UL-recognized, UV-protected thermoplastic resin for the ultimate in lightweight corrosion-proof in-line applications.

The tough protective shell allows the fan to be mounted in wet locations on board a vessel, which makes it suitable for a wide range of marine applications including multiple point exhaust and dual head exhausts.

Because Delta "T" Systems' in-line fans are caulked at the motor screws, the wiring cables and along the seams of the fan to prevent moisture from entering the housing. They are approved for wet locations. Installation and wiring are simple and the compact size allows the fan to be mounted in the inherently tight spaces on board a vessel. The fan comes pre wired and has been designed for

- 4 Inch Duct Fan — Part No. 500-804XL

- 6 Inch Duct Fan — Part No. 500-806XL

easy connection using an external wiring junction box with a waterproof gasket.

All of Delta "T" Systems' in-line duct fans are supplied with a mounting bracket and installation instructions for fast, trouble-free installation.

The performance characteristics of this in-line fan make it ideal for marine applications. Flow rates range from 122 CFM to 649 CFM with maximum allowable airstream temperatures of up to 140° F.

All models are speed controllable using the **WC 15** and **WC 25 Adjustable Manual AC Fan Controls**.

WC 15 WC 25



- WC 15 — Part No. 600-WC15
- WC 25 — Part No. 600-WC25

- 8 Inch Duct Fan — Part No. 500-808XL

- 10 Inch Duct Fan — Part No. 500-810XL

AC Centrifugal Blowers

**SC600 Six Inch
AC Centrifugal Blower**



Flow Rates to 1200 CFM

The 500-SC800-18 and 500-SC600-36 Blowers have been specifically designed and built for the rigors of the marine environment – not adapted from other industries. With a white powder coated marine grade aluminum housing that uses stainless steel fasteners, this lightweight unit provides a compact blower with excellent corrosion resistance. Featuring a multi-vane forward curved wheel with a high volume, up to 1,400 CFM, and low noise characteristic, it is ideal for O.E.M. applications where a quiet, reliable, compact blower is required. Galley fume extraction, head air extraction, engine room ventilation, and interior make up air systems are just a few of the SC800-18 and SC600-36 applications.

Motors — A 1.5 HP - 60 HZ High efficiency three phase or standard single phase direct drive motor is utilized to provide quiet continuous duty service. The motor is totally enclosed (TEFC) and is available with "CE" Classification and/or optional I-IEEE-45 Certification. Designed for worldwide applications, this blower can be provided in nearly any voltage required.

**SC800 Eight Inch
AC Centrifugal Blower**

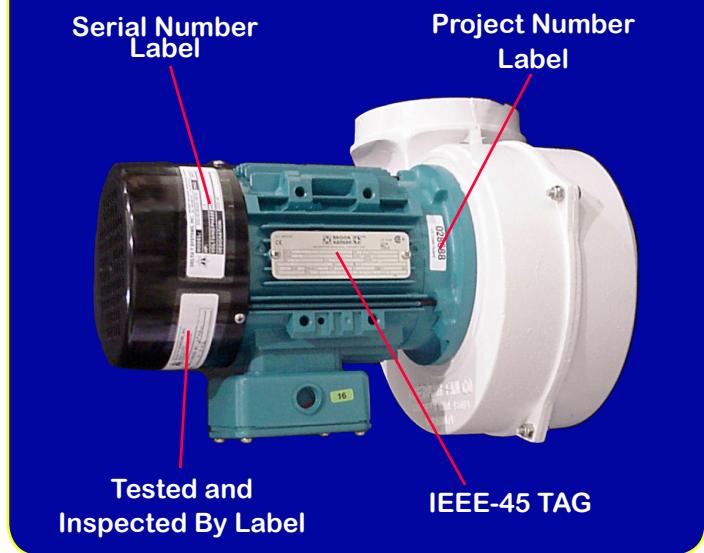


Flow Rates to 1380 CFM

Accessories & Options —

- Inlet Guard
- Outlet Guard
- I-IEEE-45 Motor Certification (3 Phase Only)

Labeling for IEEE-45 Certification



DC Fans & Blowers

LIL' Champ Four Inch DC Blower

The powerful LIL' Champ 4-inch ignition protected DC blower is ideally suited for small vessel engine rooms and OEM applications. It has been designed and manufactured specifically for marine use. Excellent for today's high horsepower gas and diesel vessels, this 4-inch blower provides extreme air volumes even at high static pressures.

The internally housed motor gives the blower an ultra-slim profile - ideal for use in confined spaces. With a housing of marine grade plastic, this unit provides a nearly indestructible, compact blower with superior corrosion resistance.

A specially marinized sealed DC direct drive motor provides quiet reliable service. The motor is a totally enclosed (TEAO) double-shielded ball bearing type, which is constructed with die cast aluminum end plates, O-ring seals, stainless steel shaft and tough black Teflon epoxy coating for superior corrosion resistance. Armatures are dynamically balanced for quiet, vibration free operation.

- 12 Volt DC — Part No. 500-304121 IP
- 24 Volt DC — Part No. 500-304242 IP

Three Inch DC Blower

The new three inch DC marine blower has been specifically designed for both new-build and refit applications. This quiet, vibration-free blower is ignition protected which makes it ideal for both diesel or gasoline applications. This sealed blower features a flange mount frame for easy replacement of existing blowers. This blower is available in both 12 and 24 volt models. At 12 volts, the current draw is 8.2 amps with a flow rate of 125 CFM at 0 inches of static.

- 12 Volt DC — Part No. 500-303121 IP
- 24 Volt DC — Part No. 500-303242 IP



Ultra-High Air Flows To 350 CFM (Free Air)
Exceeds Any Competition By At Least 100 CFM

CE Marked, and conforms to SAE J1171, ISO 8846, ISO 9097, EMC DIRECTIVE 89/336/EEC, IP 68.



Universal Mounting Bracket Included

Options:

A 4-inch diameter intake adapter plate is available for hose connection.

Intake Adapter
 Part No. 505-201251



**IGNITION
PROTECTED**

Replaces Jabsco Part Numbers: 35770-0092, 35760-0092, 35440-0000

Air Flows To 125 CFM (Free Air)

Ignition Protected DC Axial Fans

9 Inch Fan



11 Inch Fan



Flow Rates to 737 CFM

- 12 Volt DC — Part No. 500-309121IP
- 24 Volt DC — Part No. 500-309241IP

Features — CE Labeled with integrated safety guard and reversible hub/blade assembly. Ignition proof construction, conforms to J1171, ISO 8846 and ISO 9097.

Application — Ideally suited for small vessel engine rooms and OEM applications where compact high flow ventilation systems are required. The 11-inch Axial Fan provides nearly 9 times the air volume of small DC centrifugal marine blowers and the 9" Axial Fan provides 2 to 3 times the air volume of small DC centrifugal marine blowers with low electrical load requirements.

Design & Construction — Our Axial Ventilation Fans are specifically designed and built for the rigors of the marine environment — not adapted from other industries. With a flanged shroud made of glass filled nylon, this unit provides a nearly indestructible, compact fan with superior corrosion resistance. Simply changing motor

Flow Rates to 1424 CFM

- 12 Volt DC — Part No. 500-311122IP
- 24 Volt DC — Part No. 500-311242IP

polarity, removing the hub/shaft clip and reversing the hub allows this fan to be used for "pusher" or "puller" applications.

Motor — A specially marinized sealed DC direct drive motor provides quiet reliable service. Motors are totally enclosed (TEAO) double-shielded ball bearing type. Constructed with die cast aluminum end plates, O-ring seals, stainless steel shaft and tough black Teflon epoxy coating for superior corrosion resistance. Armatures are dynamically balanced for quiet, long-term, vibration free operation.

Control up to four

9 and 11 Inch DC Fans using the *DCT2 DC Fan Control System*

- 12 Volt DCT2 — Part No. 600-DCT2-12
- 24 Volt DCT2 — Part No. 600-DCT2-24

Moisture Eliminators

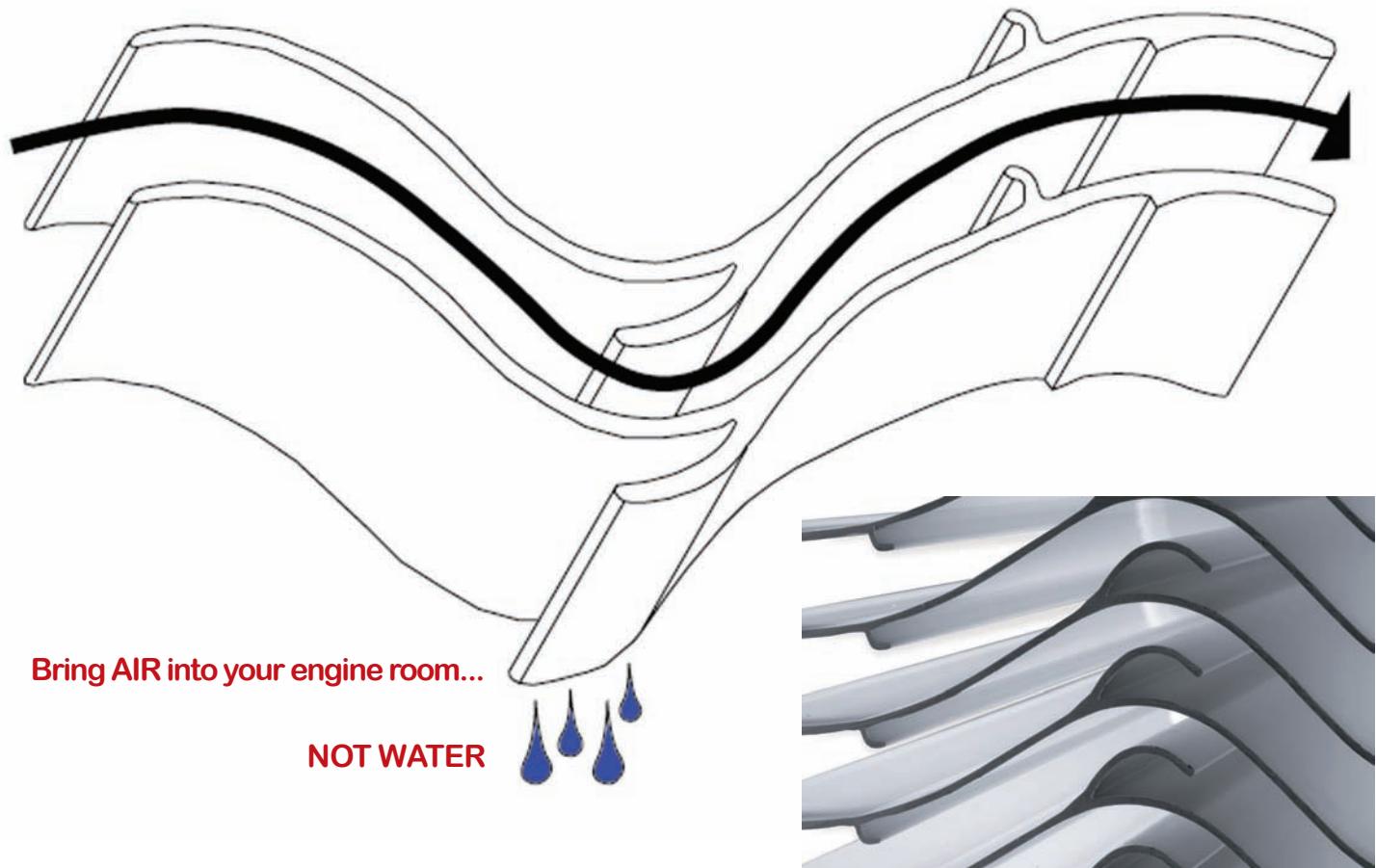


97% Effective at Filtering Salt Spray and Water from Engine Room Intake Air

Function and Operation -The Delta "T" Systems moisture eliminator is an impingement type separator designed for vertical installation and horizontal airflow. The individual profiles are specially curved and shaped to turn the airflow as it passes over the profile surface. As the entrained liquid droplets have a higher mass than the air, the liquid cannot make the turn as easily as the gas flow, and inertia forces the droplets against the surface of the profile. The liquid forms a film that is pushed along the profile into an area of low pressure located behind the hook. The liquid film is allowed to coalesce into larger droplets and then drains out via gravity at 90° relative to the airflow. The specially curved shape of the Delta "T" Systems moisture eliminator provides a low drag coefficient that allows higher velocities without excessive pressure drop. At higher velocities, smaller drops are removed due to increased inertial forces, and higher efficiencies are achieved.

Type and Materials - Profiles are available in Polypropylene (white or black), PVC and Aluminum. Housings are available in PVC or Aluminum, and are custom designed for a specific application's size and airflow requirements. The profile packs can be used as a single stage for optimum pressure drop characteristics with good particle separation (10-20 Micron range) or in multiple stage systems using a coalescing material to optimize the particle separation (1 - 10 Micron range). It is our objective to design each system for maximum particle separation, minimum pressure drop, opening size, and weight for a minimal cost. We will work with you to provide as much, or as little, engineering assistance as you might require. Marine system design is the specialty of Delta "T" Systems. With the thousands of proven applications completed, we have a system or a product to fulfill your needs and budget.

Moisture Eliminator Hook and Vane Internal Profile



Marine Dampers

**A-0 to A-60 Rated Stainless Steel
Marine Fire Dampers**



Rectangular Dampers



Round Aluminum Dampers



- Lloyds Register of Shipping Approved
- Marine Equipment Directive Compliant
- USCG Approved
- Germanischer Lloyds Approved
- American Bureau of Shipping Approved

For more detailed information on our line of round and rectangular A-0 to A-60 dampers, request a Delta "T" Systems A-0 to A-60 Damper Brochure.



Application — So often overlooked in the majority of marine applications, this difficult to find, yet vital safety component is now designed and produced for the Yacht & Shipbuilding Industries exclusively by Delta "T" Systems. The effectiveness of any installed fire system can be greatly enhanced if the ventilation openings to the protected compartment are closed at or before the discharge of the extinguishing agent. In the event of a fire system discharge, the Marine Smoke/Fire Damper provides for nearly instantaneous closure of the ventilation openings, thus preventing dilution of the extinguishing agent as well as preventing additional oxygen to enter the space to fuel and spread a fire. The Delta "T" Systems Marine Smoke/Fire Damper is an integral part of a properly designed ventilation and fire protection system aboard any vessel. Our Circular Dampers are designed to close couple directly to either end of Delta "T" Systems Marine Axial Fans to provide the safest, most compact, high volume ventilation component assembly available. The short casing design allows

the damper blade to project into the open section of the plenum to minimize overall length. Dampers may also be installed independently within an air shaft or plenum if no fan is installed. Using silicone blade seals, these units are provided with a simple mounting flange for attachment. These dampers may be configured in a wide variety of sizes. Dampers may be automatically closed via a pneumatically controlled actuator. Actuators are suitable for use with CO₂, Halon, FM-200 and other pressurized fire suppression systems and are U.S. Coast Guard (162.038/7/0), American Bureau of Shipping, UL (EX-2968) and Factory Mutual type approved. Just 70 PSI is required to provide instantaneous spring loaded closure of the air duct. Dampers may also be manually actuated and reset from outside of the damper casing. As an option, all dampers may be fitted with electric "fail-safe" type actuators. These are available in 24 volts DC, 115 volts or 230 volts AC. Electric dampers will close automatically upon loss of electrical current supply.

Electrically Actuated Damper



Pneumatically Actuated Damper

Optional Pneumatic Gas Actuation Cylinder

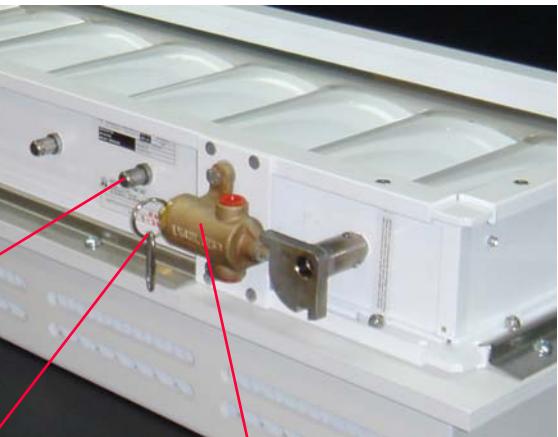


NOTE: Pneumatic dampers may be actuated using:

- 1) the engine room's pressurized fire system
- 2) an optional pneumatic Gas Cylinder
- 3) manually from outside the space

Manual Reset

Manual Release Pull



Pneumatic Release

- 12 Volt — Part No. 273-P150-12
- 24 Volt — Part No. 273-P150-24

Combined Dampers For Large Openings

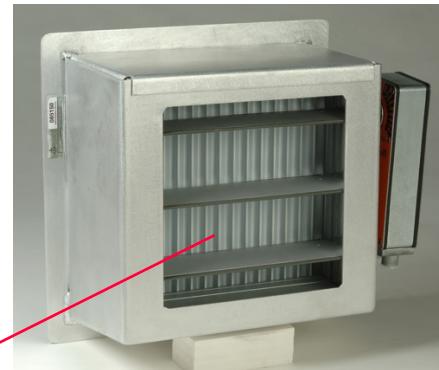
Both standard and A-60 rated dampers may be combined in custom configurations in order to conform to virtually any size opening. Shown here are two stainless steel A-60 rated combo packs. Call one of our application engineers to discuss how we can find a solution to fit your needs.



Weather Closures



Louvers Closed



Louvers Open

Moisture Eliminator Profiles
are 97 percent effective at
filtering water and salt spray
from the air when the Weather
Closure is open.



Application - Delta "T" Systems' Weather Closures offer a new closure solution to offshore vessels, work boats, crew's quarters, pump houses or any other situation that requires an opening to be shut down due to weather. Designed to fit any size or shape opening, this closure may be remotely shut down in the event of bad weather, beam seas, extreme wind, or security. This system replaces heavy doors and hatches that require manpower to close them off during heavy seas. Electric actuators are used to remotely close or open any weather closure from the helm or any other location as needed. Designed and built for the rigors of offshore conditions, the marine grade aluminum housings are

available in mill finish or powder coated to any color. Housings will also accept paint, so they may be painted along with the rest of the vessel. The Delta "T" Systems Weather Closure also features the same moisture elimination technology that has been used for many years on thousands of engine rooms of vessels around the world. When the weather closure is open, the moisture eliminator will remove the water and salt from the incoming air and is 97 percent effective down to ten microns in water particle size. The water then drains overboard through slots on a face drain. Even a driving rain is no match for the water separation properties of the Delta "T" Systems moisture eliminator.

Adjustable Angle Louvered Weather Closure

Ideal for inland tugs and coastal vessels

Available in custom sizes to fit any application

Simple installation

Marine grade materials and robust construction



Application - With the growing need for efficient and effective louver or grille assemblies for marine applications, look no further. Delta "T" Systems now provides a louver/fire damper combination for the yacht & ship-building industries. Specifically designed to close off an opening in heavy seas, or upon discharge of your fire system, with the added functionality of an angled louver, all in one.

Actuators – Capable of 24 VDC or 110 VAC actuation, this unit allows for a remote switch to be installed for closure of the Louver/Damper from any location. The actuator also allows the vessel operator to set the angle (up to 90°) that the louvers will remain at when the blades are in the fully-open position.

Standard Finish – Clear anodize. The louver/damper can also be provided with a powder-coated finish in any color.

Fire System Integration - Actuators are suitable for use with CO2, Halon, FM-200 and other pressurized fire suppression systems and are U.S. Coast Guard (162.038/7/0), American Bureau of Shipping, UL (EX-2968) and Factory Mutual type approved.

Operation - In the event of a fire system discharge, the Louver/Fire Damper can provide for nearly instantaneous closure of the ventilation openings, thus preventing dilution of the extinguishing agent as well as preventing the addition of oxygen to the space to fuel the fire. The Louver/Fire Damper can also be controlled manually from a remote location.

Design & Construction – With a rectangular space, the sky is the limit in sizing. Constructed from 6063 aluminum, to make them extremely lightweight, but strong enough for the rigors of the marine industry. Other features include high temperature silicone blade seals, and a simple mounting flange for attachment.

DC Fan Control Systems

DCT2 DC Fan Control System



- 12 Volt DC — Part No. 600-DCT2-12
- 24 Volt DC — Part No. 600-DCT2-24

- Efficient Automatic Operation
- Two Speed Manual Control (High or Low)
- Reduced Noise Levels and Current Draw
- Easy Installation and Maintenance Free
- Fire System Shutdown Capabilities

Application — Delta "T" Systems introduces the next generation in DC Voltage Control Systems technology. The 600-DCT2-12/24 DC Controller utilizes the same tried and true architecture that made the 600-DCT1 the most reliable DC ventilation controller in the world, but adds the capability of 12 or 24 VDC input/output. The 600-DCT2-12/24 control system is designed to automatically control engine room ventilation via a two-temperature setting, while still having the convenience of manual low and high-speed control.

In addition to two voltage options, the new 600-DCT2-12/24 also provides adjustable temperature settings, with two adjustable set points for making easy on-the-fly adjustments for different climates. The system's new design allows for not only a reduction in noise levels, but also reduces the current draw by up to 25%.

**The 12 VDC version of the 600-DCT2 must run either 9" fans or 4" blowers only.*

The DCT2 DC Fan Control System can be used with the 9 and 11 Inch DC Axial Fans as well as the LIL' Champ 4 Inch DC Blower.



Optional DCT2 Switch Kit

Optional switch kits for the DCT2 Fan Control System provide attractive yet robust control of the forward, reverse, high and low fan functions.

- Surface Mount Kit — Part No. 610-201376
- Flush Mount Kit — Part No. 610-201377

Surface Mount Kit



Flush Mount Kit



The Head Vent System

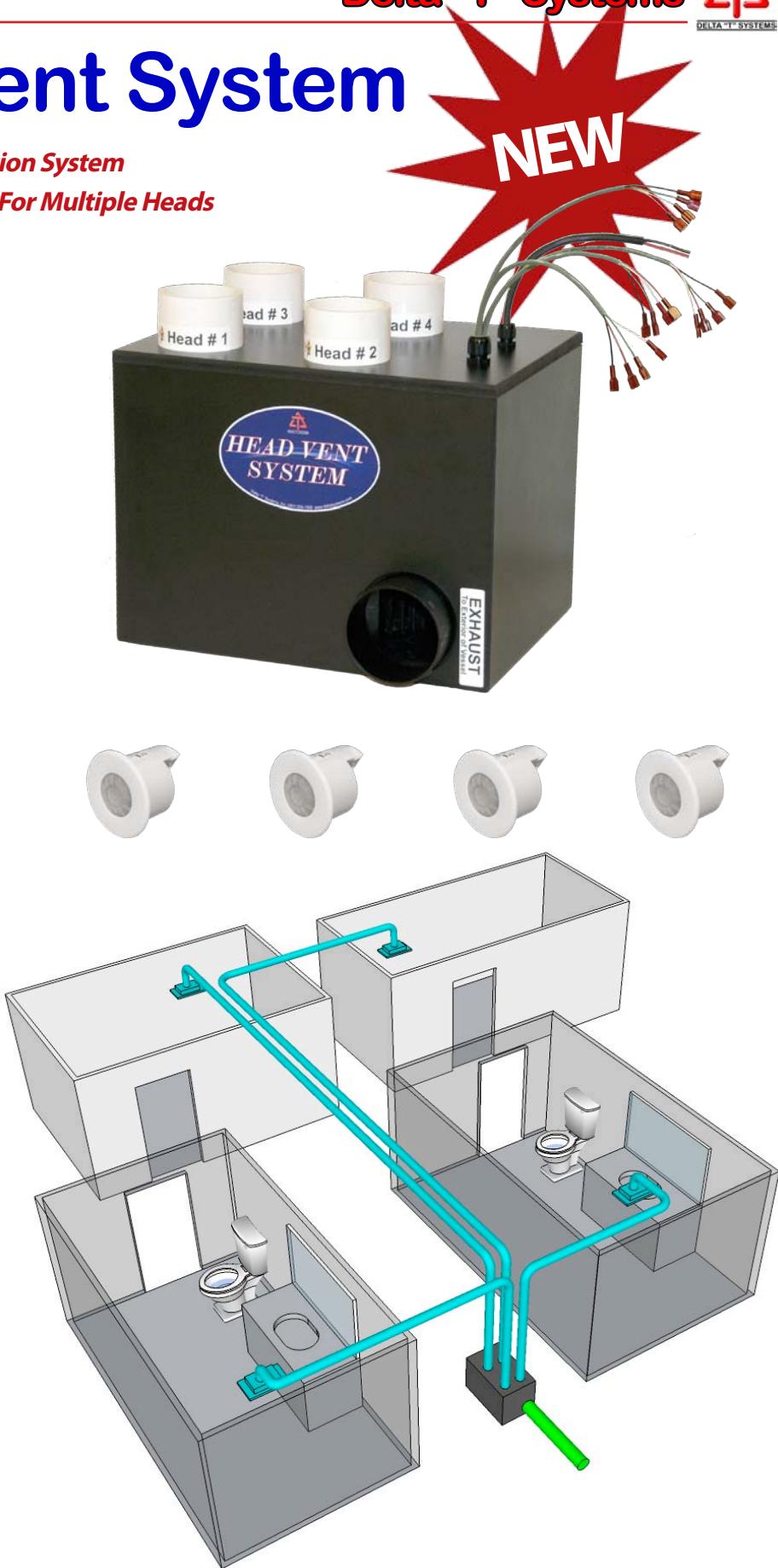
NEW

*A Fully Automatic Air Extraction System
Using One Remotely Located Blower For Multiple Heads*

Overview — The new Head Vent System is tomorrow's ventilation technology that is available for your vessel today. Noisy and ineffective in line fans are replaced by a single remotely located plenum box, which automatically evacuates the stale air from multiple heads as needed.

System Application — The Head Vent System uses motion sensors mounted in each head to detect occupancy and begin the flow of air. When the occupant leaves the head, the flow of air will continue for a pre-selected period of time and then will automatically shut down. The run time for each head is set by the user when the system is installed. Each head may be set independently with a different run time in order to accommodate varying head sizes as well as personal preferences.

System Benefits — The Multiple Compartment Vent System is powerful, quiet and fully automatic. All major components are housed within a single plenum box and the plenum box may be located remotely in any suitable space and oriented in any required manner. The system is simple to install and may be plumbed using either three or four inch piping. Only one exhaust duct means that only one location is needed for stale air to exit the vessel. If desired, the system may also be used manually by installing a switch in each head instead of a motion sensor.



AC Fan Control Systems

P/T4 and T4 Fan Control Systems



Overview - The P/T4 and T4 Series Ventilation Control Systems are state-of-the-art digital ventilation control systems that are designed and manufactured specifically for the rigors of the marine engine room.

Delta 'T' Systems has supplied thousands of the P/T4 and T4 Fan Control Systems to vessels all over the world, and has added the features that the captains and ship's engineers have requested to make the PT4 and T4 the control systems of choice for offshore vessels of every type.

The P/T4 and the T4 each may be run in automatic or manual mode. Normal operation is in automatic mode which goes into effect as soon as the vessel's engines are started. In Automatic mode, engine room temperature and combustion air intake are automatically controlled to optimum levels based on temperature and pressure for the P/T4, and by engine room temperature alone for the T4.

These systems include a color touch screen Fan Control Interface (FCI) and an integrated alarm output that can be connected to a vessel's central alarm system. Help screens and simplified parameter and monitoring screens make operation and adjustment fast and easy. The P/T4 and T4 Series Systems allows the variable speed control of two or more three-phase fans via a digital touch screen Fan Control Interface (FCI). Each system may be configured to accept single or three phase AC input power to the ASDs (Adjustable Speed Drives), depending on the available power aboard the vessel.

Auto Mode: Both the P/T4 and the T4 systems start in Auto Mode when the engines are started. When the P/T4 system switches to Auto Mode, the exhaust fan(s) speed is adjusted automatically as the temperature increases, measured by a sensor located within the engine room. The intake fan(s) speed is controlled by an engine room pressure sensor. This sensor requires a sensing tube to the outside atmosphere as well as to the engine room space to measure the differential pressure. As the engines demand greater volumes of air and the exhaust fan(s) flow increases as temperature rises, the intake fan(s) speed will increase to supply the required airflow, thus maintaining the correct pressure and volume under any conditions.

In Auto Mode, the T4 system regulates both the intake and exhaust fans based on engine room temperature alone.

Quiet Run: Upon main engine shut down, the P/T4 and the T4 ventilation control systems switch to the Quiet Run Mode which cools the engine room down at a user specified fixed fan speed. Once the user specified temperature has been reached, the fans will stop thermostatically.

Manual Mode: In addition to the two automatic modes of operation there is a Manual Mode. The Manual Mode allows the operator to control the fan speed and direction independently for maintenance or unusual situations. This mode of operation is not recommended for use when underway and the main engines are running.

C2 Manual Fan Control System



New Commercial Grade
Touchscreen Interface

- Simple One-Touch Control
- Engine Room Status Displayed



Application — Delta "T" Systems' robust and reliable C2 Control System allows for the manual variable speed control of one or more three-phase fans within the engine room using a single control station. The C2 Control System may be configured to accept single or three phase input power to the adjustable speed drive(s), depending on the available power aboard the vessel. The system also provides the capability to shut

down all engine room fans in the event of an engine room discharge of the fire system which adds an extra margin of safety to the C2 Control System. Provision for an emergency ventilation shut down switch as well as an emergency over-ride switch are also included. All of Delta "T" Systems' controls and other components are fully bench and load tested at the factory before being shipped to our customers.

WC 15 and WC 25 Adjustable Manual AC Fan Controls

Application — Delta "T" Systems' **WC 15** and **WC 25** manual adjustable controls are designed to be used to control the output of small AC fans. The **WC 15** will control a fan of up to 15 Amps, and the **WC 25** will control a fan of up to 25 Amps of current.

Ideally suited to control Delta "T" Systems' small AC Axial Fans and Inline Blowers.



WC 15



• WC 15 - Part No. 600-WC15

WC 25



• WC 25 - Part No. 600-WC25

Wet Zone Sentry



DELTA "T" SYSTEMS

Overview

The new Wet Zone Sentry System is unlike anything on the market today. A single compact control box provides the intelligence and the muscle to perform two key functions: First, the Wet Zone Sentry System will earn its way into the captain's heart by keeping all of the wet compartments or "Zones" in the vessel bone dry. Secondly, the system will earn the *Sentry* portion of its name by logging and displaying the historical data for all of the wet zones on the vessel so that irregularly high pumping activity can be investigated and corrected at the source before the problem escalates.

In the past, even a well made vessel has always had pockets of water or other fluids which cause foul odors, accelerated corrosion and an unsightly mess in the bilge, in HVAC drip pans, in shower sumps or in drip boxes. Fluid filled bilge compartments also made it very difficult to isolate an oil or fluid leak below deck. The Wet Zone Sentry System makes those problems a thing of the past. New vessels can keep their bilges and other wet zones looking like they did the day the boat was launched, while keeping track of the pumping activity in those areas and avoiding the problems associated with excess water or other fluids.

Equally important to the pumping functions of the Wet Zone Sentry System are the data logging features of the system. Keeping track of the pump-out time for each wet zone on board the vessel provides valuable data that can catch small leaks below deck or in other locations before they turn into large problems. The data also serves to prove the long-term

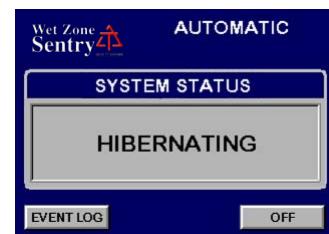
integrity of the vessel during a survey for a prospective buyer or an insurance event.

The System

The Wet Zone Sentry System is made up of a central control enclosure, a color touch screen and up to eight low water sensors. The control enclosure may be located in the engine room or elsewhere and only requires a 110 VAC power connection. The touch screen is typically located in the front panel of the control enclosure. The low water sensors are placed at the lowest point of each wet zone and only a small 3/16 inch hose is run back to the control enclosure. The system is simple to install and very intuitive to operate.

System Operation

The Wet Zone Sentry System is controlled through the color touch screen. When the system is powered up, it will test each compartment or "wet zone" on the vessel for the presence of fluid. If it detects water or other fluids it will pump the wet compartments out and log the time that it took to clean each compartment. When all zones have been checked and pumped out, then the system will hibernate for a preselected period of time (factory setting is 3 hours). After the hibernation time, the system will wake up and re-test each zone and remove any fluids that it may find. The system is seamless and this pattern continues on indefinitely. Display screens show the system status at all times as well as allow for adjustments to most system parameters. No other system even comes close to the form, function and features of the Bilge Sentry System.





DELTA "T" SYSTEMS

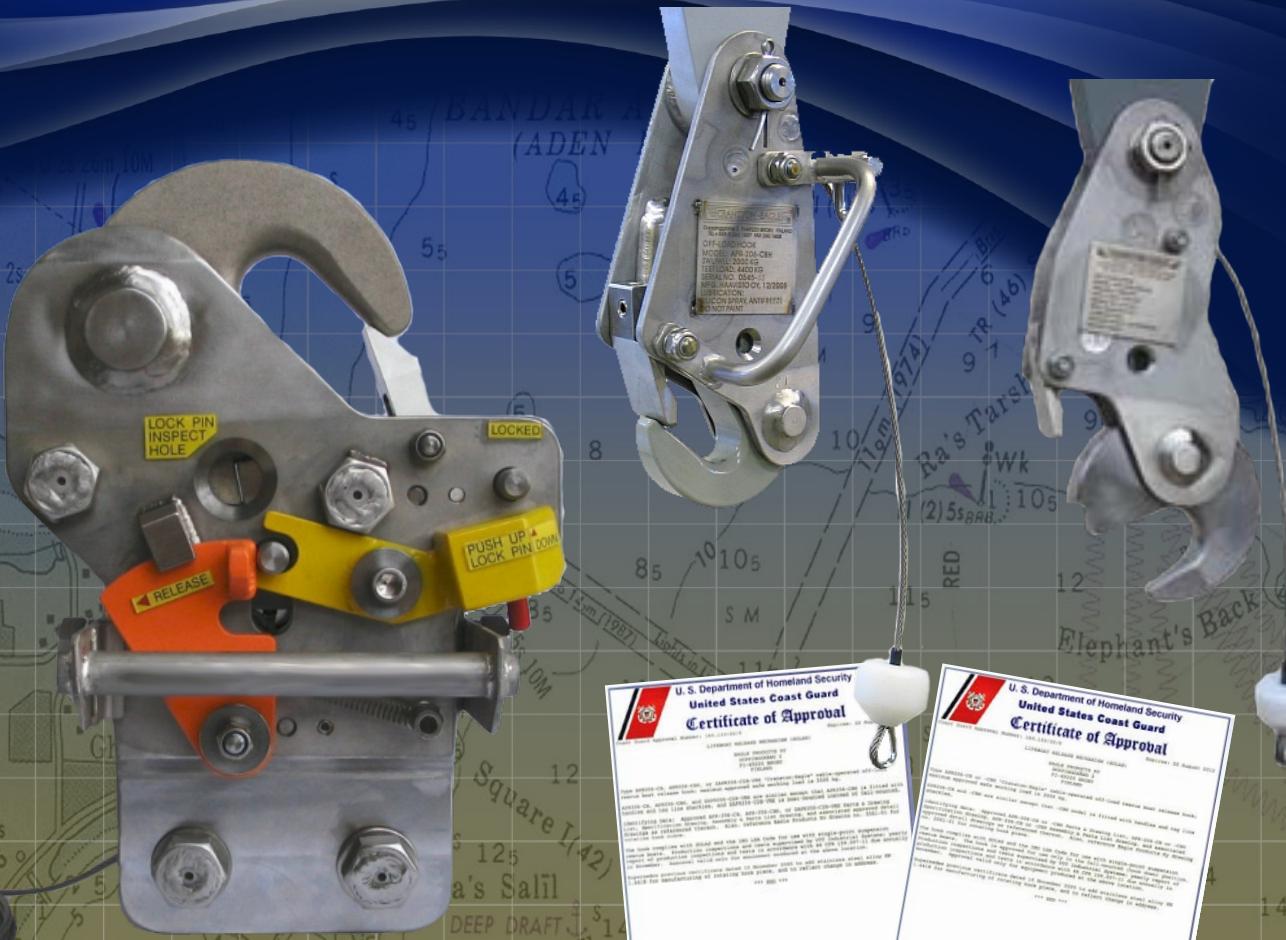
Delta "T" Systems

United States Agent for Cranston Eagle



Marine Off-Load Hooks

SALES - SERVICE - PARTS - TESTING - CERTIFICATION



**- OPEN BOAT AND ROOF MOUNTED MODELS
- DAVIT AND CRANE FALL MOUNTED MODELS
- STANDARD AND US COAST GUARD APPROVED**

SEE CAUTION

Davit/Crane Fall Mounted Hooks

200-APR-206-CB/CBH

MODEL: 200-APR-206-CB and 200-APR-206-CBH

SWL/WLL: 2000 kg / 4409 lb (6:1)

HOOK TYPE: Davit Mounted Off-Load Hook

RELEASE TYPE: Quick Release With Pull Cable

Models CB and CBH are similar except that the CBH model is fitted with two handles and tag line shackles. The hook is completely made of stainless steel.



200-APR-356-CB/CBH

MODEL: 200-APR-356-CB and 200-APR-356-CBH

SWL/WLL: 3500 kg / 7716 lb (6:1)

HOOK TYPE: Davit Mounted Off-Load Hook

RELEASE TYPE: Quick Release With Pull Cable

Models CB and CBH are similar except that the CBH model is fitted with two handles and tag line shackles. The hook is completely made of stainless steel.

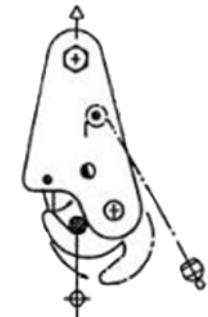


Styles 20, 25, 30 and 35 Davit/Crane Fall Mounted Hooks

STYLE 20

Style 20 model hooks are mounted by one bolt at the top of the hook for attachment to an adapter plate at the end of a davit or crane fall. Pull cable operated release at the hook. Top bolt included in the delivery.

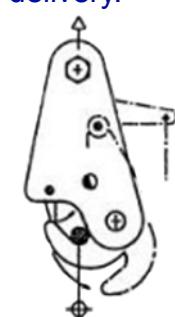
MODEL	SWL/WLL	RELEASE TYPE
200-20-APR-206-CB	2000 kg / 4409 lb	Pull Cable
200-20-APR-356-CB	3500 kg / 7716 lb	Pull Cable
200-20-APR-456-CB	4500 kg / 9920 lb	Pull Cable
200-20-APR-556-CB	5500 kg / 12125 lb	Pull Cable
200-20-APR-656-CB	6500 kg / 14330 lb	Pull Cable
200-20-APR-856-CB	8500 kg / 18739 lb	Pull Cable
200-20-APR-1006-CB	10000 kg / 22046 lb	Pull Cable



STYLE 25

Style 25 is the same as Style 20 except it is fitted with a lever with a pull cable attached to keep it clear of the hook assembly. Release operated at the hook. Top bolt included in the delivery.

MODEL	SWL/WLL	RELEASE TYPE
200-25-APR-456-LCB	2000 kg / 4409 lb	Lever with Pull Cable
200-25-APR-556-LCB	5500 kg / 12125 lb	Lever with Pull Cable
200-25-APR-656-LCB	6500 kg / 14330 lb	Lever with Pull Cable
200-25-APR-856-LCB	8500 kg / 18739 lb	Lever with Pull Cable
200-25-APR-1006-LCB	10000 kg / 22046 lb	Lever with Pull Cable



STYLE 30

Style 30 model hooks are mounted by shackle or clevis at the top of the hook, for attachment to end-of-line gear at the end of the davit or crane fall. Pull cable operated release at the hook. Shackles are optional.

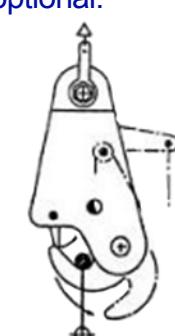
MODEL	SWL/WLL	RELEASE TYPE
200-30-APR-206-CS	2000 kg / 4409 lb	Pull Cable
200-30-APR-356-CS	3500 kg / 7716 lb	Pull Cable
200-30-APR-456-CS	4500 kg / 9920 lb	Pull Cable
200-30-APR-556-CS	5500 kg / 12125 lb	Pull Cable
200-30-APR-656-CS	6500 kg / 14330 lb	Pull Cable
200-30-APR-856-CS	8500 kg / 18739 lb	Pull Cable
200-30-APR-1006-CS	10000 kg / 22046 lb	Pull Cable



STYLE 35

Style 35 is the same as Style 30 except fitted with a lever with pull cable attached to keep it clear of the hook assembly. Release operated at the hook. Shackles or other attachments are optional.

MODEL	SWL/WLL	RELEASE TYPE
200-35-APR-456-LCB	2000 kg / 4409 lb	Lever with Pull Cable
200-35-APR-556-LCB	5500 kg / 12125 lb	Lever with Pull Cable
200-35-APR-656-LCB	6500 kg / 14330 lb	Lever with Pull Cable
200-35-APR-856-LCB	8500 kg / 18739 lb	Lever with Pull Cable
200-35-APR-1006-LCB	10000 kg / 22046 lb	Lever with Pull Cable



Boat Roof Mounted Hooks

200-40-DPR-656-C4B-VMX-LH or RH

MODEL: 200-40-DPR-656-C4B-VMX-LH or RH

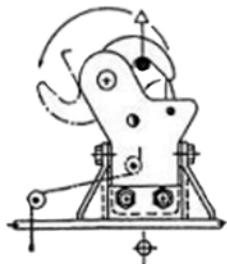
SWL/WLL: 6500 kg / 14330 lb (6:1)

HOOK TYPE: Boat Roof Mounted Off-Load Hook With Positive Lock

RELEASE TYPE: Quick Release With Pull Cable

This model hook is fitted with a lock pin retainer cam that prevents re-locking before the lifting ring is out of the hook. The positive lock device mechanically prevents the hook from opening. Models LH and RH are mirror designs. When facing the hook opening, model LH has the controls on the left side and RH on the right side. The hook is completely made of stainless steel.

Style 40



200-40-DPR-856-C4B-VMX-LH or RH

MODEL: 200-40-DPR-656-C4B-VMX-LH or RH

SWL/WLL: 8500 kg / 18739 lb (6:1)

HOOK TYPE: Boat Roof Mounted Off-Load Hook With Positive Lock

RELEASE TYPE: Quick Release With Pull Cable

This model hook is fitted with a lock pin retainer cam that prevents re-locking before the lifting ring is out of the hook. The positive lock device mechanically prevents the hook from opening. Models LH and RH are mirror designs. When facing the hook opening, model LH has the controls on the left side and RH on the right side. The hook is completely made of stainless steel.



Open Boat Mounted Hooks

Styles 50, 60 and 70 Open Boat Mounted Hooks

STYLE 50

Style 50 hooks are mounted using two bolts at the base of the hook, plus in larger models one more bolt is used midway between the hook piece and the hook base. Hand lever operated release at the hook. Positive lock feature. Mounting bolts are included with the delivery. The hook is completely made of stainless steel.

MODEL	SWL/WLL	RELEASE TYPE
200-50-APR-356-L2B or L3B	3500 kg / 7716 lb	Lever
200-50-APR-356-L2B or L3B	4500 kg / 9920 lb	Lever
200-50-APR-356-L2B or L3B	5500 kg / 12125 lb	Lever



STYLE 60

Style 60 hooks are the same as style 50 except the release control is operated by a pull cable at the hook. It is mounted using two bolts at the base of the hook, plus in larger models one more bolt is used midway between the hook piece and the hook base. Positive lock feature. Mounting bolts are included with the delivery. The hook is completely made of stainless steel.

MODEL	SWL/WLL	RELEASE TYPE
200-60-APR-356-C2B or C3B	3500 kg / 7716 lb	Pull Cable
200-60-APR-456-C2B or C3B	4500 kg / 9920 lb	Pull Cable
200-60-APR-556-C2B or C3B	5500 kg / 12125 lb	Pull Cable



STYLE 70

Style 70 hooks are the same as the Style 40 except without the lock pin retainer cam. It is mounted using two bolts at the base of the hook, plus in larger models one more bolt is used midway between the hook piece and the hook base. The positive lock feature mechanically prevents the hook from opening. Mounting bolts are included with the delivery. The hook is completely made of stainless steel.

MODEL	SWL/WLL	RELEASE TYPE
200-70-DPR-656-C4B	6500 kg / 14330 lb	Pull Cable
200-70-DPR-856-C4B	8500 kg / 18739 lb	Pull Cable
200-70-DPR-1006-C4B	10000 kg / 22046 lb	Pull Cable



200-ZAPR-356-C2B-VMX

MODEL: 200-ZAPR-356-C2B-VMX

SWL/WLL: 3500 kg / 7716 lb (6:1)



HOOK TYPE: Open Boat Mounted Off-Load Hook With Positive Lock

RELEASE TYPE: Quick Release With Pull Cable

The hook is completely made of stainless steel.

Approved by the US Coast Guard

SOLAS, USCG Approval No. 160.133/22/0



Visit www.deltatsystems.com for specifications





Delta "T" Systems

Application Data Worksheet

Required Fields *

Please fill out completely and return to Delta "T" Systems' Application Engineering Department.

Customer

NAME* _____ COMPANY* _____
ADDRESS* _____
CITY* _____ STATE* _____ ZIP* _____ COUNTRY* _____
TEL.* _____ FAX* _____ EMAIL* _____

Application

NEW CONSTRUCTION MFG./BUILDER/DESIGNER _____
 NEW DESIGN HULL NO./VESSEL NAME* _____
 BUDGETARY QUOTE MODEL/TYPE _____
 RETROFIT LOA _____ BEAM _____ YEAR BUILT _____

Engines

ENGINE MFR.* _____ MODEL NO.* _____ NO. ENGINES* _____
RATING* _____ (eg.: A, B, C, D, E, PLEASURE CRAFT, COMMERCIAL, etc.)
MAX RPM _____ CONTINUOUS RPM _____ RATED HP. _____

Generators

MFR.* _____ MODEL NO.* _____ NO. GENERATORS* _____
KW.* _____ VOLTAGE* _____ HZ.* _____ PHASE* _____ CONTINUOUS RPM _____
MFR.* _____ MODEL NO.* _____ NO. GENERATORS* _____
KW.* _____ VOLTAGE* _____ HZ.* _____ PHASE* _____ CONTINUOUS RPM _____
LOCATION OF GENSETS?* ENGINE ROOM OTHER LOCATION _____

Engine Room

MAX ENGINE RM. HEIGHT* _____ (To Deck Plates) MAX ENGINE RM. WIDTH* _____ MAX ENGINE RM. LENGTH* _____

Is there any fixed tankage within the engine room space? If YES, indicate the tank types and sizes below.*

TANK 1 _____ L x W x H _____ TANK 2 _____ L x W x H _____
TANK 3 _____ L x W x H _____ TANK 4 _____ L x W x H _____



Delta "T" Systems

Application Data Worksheet - Page 2

Fans

Indicate any existing and/or designed ventilation fans.

MFR.* _____ MODEL NO.* _____ CFM* _____

ID* _____ QTY.* _____ VOLTS* _____ HZ.* _____ PHASE* _____

DUTY* _____ (INTAKE, EXHAUST, COMBUSTION AIR, etc.)

MFR.* _____ MODEL NO.* _____ CFM* _____

ID* _____ QTY.* _____ VOLTS* _____ HZ.* _____ PHASE* _____

DUTY* _____ (INTAKE, EXHAUST, COMBUSTION AIR, etc.)

Openings

EXISTING ENGINE ROOM VENTILATION OPENINGS* _____ L x W x H _____ QTY.* _____

EXISTING ENGINE ROOM VENTILATION OPENINGS* _____ L x W x H _____ QTY.* _____

Approvals

Indicate any required approvals.*

<input type="checkbox"/> ABS - American Bureau of Shipping	<input type="checkbox"/> Lloyds/MCA - Maritime Coastal Agency
<input type="checkbox"/> USCG - United States Coast Guard	<input type="checkbox"/> Australia - National Marine Safety Committee
<input type="checkbox"/> DNV - Det Norske Veritas	<input type="checkbox"/> GL - Germanischer Lloyd
<input type="checkbox"/> RINA - Registro Italiano Navale	<input type="checkbox"/> TC - Transport Canada
<input type="checkbox"/> CE - Certified European	<input type="checkbox"/> BV - Bureau Veritas
	<input type="checkbox"/> Maritime New Zealand

Quote Type

Indicate product and service of interest.*

<input type="checkbox"/> COMPLETE VENTILATION SYSTEM	<input type="checkbox"/> MANUAL FAN CONTROL SYSTEM
<input type="checkbox"/> MOISTURE ELIMINATORS	<input type="checkbox"/> WEATHER CLOSURES
<input type="checkbox"/> MARINE AXIAL FANS - A/C <input type="checkbox"/> D/C <input type="checkbox"/>	<input type="checkbox"/> COMBUSTION/COOLING AIR OPENING ANALYSIS
<input type="checkbox"/> SMOKE & FIRE DAMPERS	<input type="checkbox"/> OTHER _____
<input type="checkbox"/> AUTOMATIC FAN CONTROL SYSTEM	_____

Please include photographs and/or drawings of the engine room and existing air openings.*

AVAILABLE: DRAWINGS (.DXF, .DWG) PHOTOGRAPHS (.JPG, .TIF, .EPS, etc.)

Required Fields *

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DELTA "P" SUBSEA
SYSTEMS

Delta "P" Subsea Systems

Full Capability Engineering Solutions



DELTA "T" SYSTEMS

Onshore - Offshore - Subsea - Manufacturing

(ADEN HARBOR)



Product Design

Contract Engineering

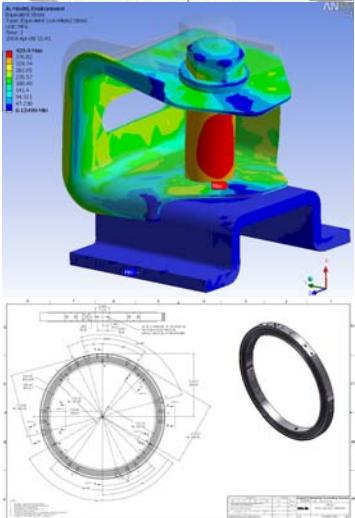
Contract Manufacturing

Delta P Subsea Systems has grown out of the need for high caliber contract engineering and manufacturing in today's business world. As a corporate partner of Delta T Systems, our engineers are specialized in high specification work in onshore, offshore and subsea projects. They are creative problem solvers with extensive design experience using solid modeling and animation, systems engineering, analysis tool for a wide variety of subsea and components.



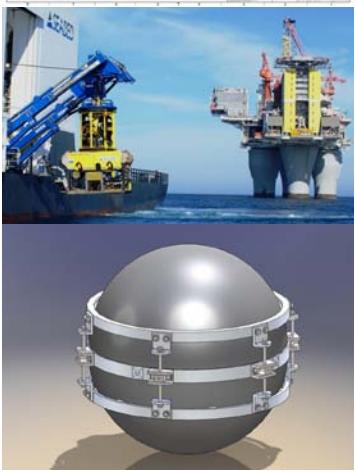
Systems Engineering

- Fire Detection & Suppression
- Life Support
- Engine Room Ventilation
- Marine Exhaust
- Marine HVAC
- Monitoring, Command & Control
- Manned and Unmanned Vehicles
- Shipboard Power Distribution & Control
- Subsea Power Distribution & Control
- ROV Tooling & Work Package
- Hydraulic System Analysis
- Design Simulation & Rapid Prototyping



Design and analysis tools

- SolidWorks
- ANSYS
- PCad
- AutoCad
- MathCad



Design Standards

Delta P Subsea Systems performs design services to a wide variety of international design, welding and manufacturing standards including:

• ASME Sec. II	• AISC ASD	• ABS Rules	• MCA
• ASME Sec. VIII	• ASME PVHO-1	• AODC	• GL
• BS PD5500	• AWS	• DNV Rules	• IMCA
• CEC	• IEEE 45-1998	• NEC	• LLOYDS Rules



- SOLAS and IMO LSA Compliance
- Boat Hooks and Cargo Hooks
- Short Turnaround - Cost Effective
- Sales, Service, Recertification

Contract engineering and manufacturing makes sense in todays business climate. Delta P Subsea Systems has assembled a world class team of engineering and manufacturing capabilities in order to provide cost effective solutions to onshore, offshore and subsea industries alike. Call to find out more about how we can help you to achieve your goals on time and on budget.

Delta P Subsea Systems, LLC. 858 West 13th Court Riviera Beach, FL 33404

Phone 561-204-1515 • Fax 561-828-0399 • engineering@deltapsubseasystems.com • www.deltapsubseasystems.com